

ABSTRACT

A method of producing a synthetic fuel by treating bituminous coal fines with a tall-oil mix that may include enhancer additives that either increase the chemical change capability of the tall-oil mix or reduce the cost of the tall-oil mix while maintaining the chemical change rate, and/or an additive of tar decanter sludge and light cycle oil. Enhancers include poly vinyl acetate (PVA) and/or ethyl vinyl acetate (EVA), glycol, lignosulfonate, beet sugar bottoms, corn bottoms, brewery bottoms, vegetable tall oil, vegetable oil, and/or spent frying oil. The tall-oil mix is reacted with the coal, resulting in a cost effective and industry-usable source of synthetic fuel. When the enhanced tall-oil mix is reacted with bituminous metallurgical coal, the product is a synthetic fuel.